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SYNOPSIS OF THE SPECIES OF *ACMÆODERA* OF AMERICA, NORTH OF MEXICO.

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It is safe to say that any synopsis of coleoptera, no matter how excellent, dating back twenty years and dealing with a genus or group of any considerable magnitude, is to-day inadequate for the arrangement of the material in any of our larger collections. Particularly is this true if the metropolis of the group lies west of the Mississippi valley. The skilled labor of many visiting and resident collectors has brought to light in this western country hundreds of new things, which after a vain effort to fasten to existing descriptions we have relegated to empty spaces and vacant corners, until in many of our boxes all semblance of order has disappeared.

It is the object of the present paper to give to a small number of these nondescripts a local habitation and a name; and while a complete revision of *Acmæodera* is not yet greatly needed, the discoveries in the twenty years that have elapsed since Horn's paper appeared, have been sufficiently numerous it is thought, to warrant the following notes.

Though none of our species of *Acmæodera* are above medium size, they are as a rule very pretty insects, and would doubtless share the popularity of the family to which they belong, were it not for a somewhat unusual amount of individual variation, which gives them the reputation of being a difficult lot to deal with. In his Notes on *Buprestidæ*,* Crotch said "—but I am entirely unable to discover any characters except the variable ones of color, sculpture and form; so that the limits of the species appear to be merely opinionative." Five

* Proc. Acad. Sc. Phil., 1873, p. 89.

years later Horn in his Revision of the species of *Acmaeodera*,† after quoting Crotch, remarks that “possibly the following pages may show quite to the contrary.” The paper to a large extent fulfills the prediction, and with a few exceptions, the species prove—notwithstanding much variation—to be about as capable of definition as those of any other genus of like extent. The student, however, who attempts without some preparatory study to identify his specimens by means of the tables therein given, encounters several difficulties, the chief of which is the inexactness of the characters upon which the group divisions are based.

The tarsi in the great majority of species are said to be not longer than one-third the tibiae, but in two species—*comata* and *alacris*—they are longer than half the tibiae, and for this reason these two species are made to constitute the group Graciliformes. As a matter of fact, there is no species in our fauna with tarsi so short as described, and in only two—*subbalteata* and *opinabilis*, the latter unknown to Horn at time of writing—do they even approximate this condition; the great majority having the tarsi distinctly longer than half the tibiae. This error, however, need cause little confusion, as *alacris* and *comata* are very peculiar species, separable quite as well by other characters.

The interpretation of the form of the anterior margin of the prosternum, upon which the larger groups are based may prove more difficult. Judging both from the figures and description, this primary division should be accomplished with ease and certainty, but it must be remembered that these figures are only conventional diagrams representing typical forms which are more or less completely connected by intermediates. The “Emarginatæ” while not the largest, may be regarded as a central group, characterized by the prosternum in front, being nearly straight or feebly emarginate from side to side and distinctly retracted so as to meet the flanks at some distance behind the front angles. In most species assigned to this group however, the margin is faintly trisinate and occasionally the prominence on either side of the middle becomes so well marked as to create a doubt as to whether the form in question should be referred to this or to the Sinuatæ group. If the front margin is less retracted than usual, approach is made to the Truncatæ, where it often happens that the sides of the prosternum more or less obviously fail to reach the front angles.

† Trans. Am. Ent. Soc., 1878, p. 2.

Notwithstanding that the form of the prosternum is thus in some measure unsatisfactory as a point of departure, a better has yet to be found and I shall continue the division into groups substantially as proposed by Horn, calling attention in the proper place to the ambiguous forms.

That modification of the last ventral segment variously described as the apical ridge, plate, crest or carina, is certainly of exceptional value in specific characterization. It may be thick or thin, broadly or narrowly rounded, truncate or angulate, with regular or irregular edge, but I have never in the hundreds of specimens examined discovered any variation in type within specific limits. It does vary somewhat in development in certain species and very rarely to such a degree as to be either well developed or quite lacking in the same species. This fact together with its apparent lack of coördination with other features of structure or facies, render it unfit for a means of primary division, though it was thus made use of by Leconte for the sixteen species treated in his revision of 1859.

Further experience shows that the yellow spot at the side of the thorax is much less constant than was supposed by Horn, there being at least nine species in which it may be either present or absent. External sexual characters seem to be almost lacking. The last ventral segment in the males of certain species has been observed to be shorter and more truncate at tip than in the female, but the difference is feeble and I have not attempted to investigate the extent or constancy of its occurrence. In certain small species of the *Truncatæ* (*tubulus* and allies) the claws in the males are provided with a distinctly longer, stouter tooth than in the females. I have not noticed a similar disparity elsewhere, but I am not prepared to say that it does not exist. The character has not been used at all in classification, and the student who has a sufficient series of specimens can, if he is curious, easily investigate for himself.

In distribution the genus is practically confined to the southwestern region. Aside from the two West Indian species—*cubaicola* and *pulcherrima*, which have lately been found on the Florida Keys, three species only—*ornata*, *pulchella* and *culta*—are known from the region east of the Mississippi River; *variegata* extends its range into eastern Oregon; all other species hail from the territory embraced by the following States or Territories—Texas, New Mexico, Colorado, Utah, Arizona, Nevada and the Californias. At the time of Horn's revision

not more than ten species were known from Southern California, but careful collecting in recent years by Messrs. Coquillett, Van Dyke, Feinys, Daggett, and the author, make it possible to say that fully thirty species, or nearly half the number in our entire fauna, are now known from the same region, and it is probable that further exploration will add to this total. In the notes following the tables reference will be made in the case of each species to the place of original description; for complete bibliography the student is referred to the revision of Dr. Horn. For a cabinet arrangement it would be better to follow the order in which the species are mentioned in the notes, rather than in the tables.

It only remains to express my grateful appreciation to the friends and correspondents for the generally hearty response to all calls for specimens or information. I have thus been privileged to study a far larger material than any previous student has been able to command, while the courtesies extended by the California Academy of Sciences, the American Entomological Society of Philadelphia, the Museum of Comparative Zoölogy at Cambridge and the National Museum have enabled me, by the examination of all the types of Leconte and Horn, to speak with more of authority than would otherwise have been possible. As might be expected, there remain in the material before me sundry specimens—mainly uniques—which I have left unplaced. The proper disposition of such as these, and the precise definition of the limits of the species in the neighborhood of *acuta* and *subbalteata* must be left to the wider view and larger experience of the future investigator.

The table given by Dr. Horn for the separation of the genus into groups, is, with some modification, given below:

- | | |
|---|--------------------------|
| Elytral intervals 3-5-7 costiform, from narrow, agriloid..... | 2 |
| Elytra with never more than a single interval distinctly costiform in more than basal half, usually entirely devoid of costæ, form broader, usually more or less depressed..... | 1 |
| 1. Front margin of prosternum retracted, side not reaching the front angles. | |
| Prosternum trisinate in front | ACMEODERÆ SINUATÆ. |
| Prosternum scarcely sinuate in front, the margin nearly straight or feebly arcuate from side to side..... | ACMEODERÆ EMARGINATÆ. |
| Front margin of prosternum, not or very slightly retracted, usually straight..... | ACMEODERÆ TRUNCATÆ. |
| Front margin of prosternum lobed at middle, sides attaining the angles..... | ACMEODERÆ LOBATÆ. |
| 2. Front margin of prosternum sinuate or lobed, tarsi unusually long..... | ACMEODERÆ GRACILIFORMES. |

ACMÆODERÆ SINUATÆ.

The members of this, the largest section of the genus, agree in having the front margin of the prosternum retracted and more or less prominent on either side of the middle. In *scapularis*, *pubiventris*, *lanata*, *fenyesi*, *recticollis*, *plagiaticauda*, *jocosa*, *coquilletti*, *miliaris*, and *sparsa*, the prominence is dentiform, and though not equally strong, is conspicuous in all. In *flavomarginata* the prosternum is broadly subangulate, and this angulation becomes more rounded and less advanced through *maculifera*, *ampliocollis*, *disjuncta*, etc., until in *convicta*, *serena*, *tuta*, *hepburnii* and *quadriseriata* the margin becomes scarcely more than broadly undulate. It must be borne in mind that specimens occur in many species and are likely to in all, in which the sinuation is decidedly more or less marked than is usual in the species; therefore too much stress must not be laid upon this character when unsupported by others. The elytra in *cuprina* and *scapularis* exhibit a discal costa, quite strong in the former, less marked in the latter species; *flavomarginata*, some specimens of *fenyesi* and occasional individuals of other species show traces of this costa. The thoracic spot is so far as observed constant either in its presence or absence in all but two species—*scapularis* and *hepburnii*—in both of which the spot is rarely lacking. The tarsi are in all species more or less evidently longer than one-half the tibiæ. The apical ventral plate is more or less defined in all except *macra*, *scapularis* and *pulcherrima*, but is very small in *tuta*. The thirteen species tabulated by Horn have now increased to twenty-eight; they may be separated as follows:

- Thorax more or less distinctly wider than the elytra, side margin usually well defined, and visible (except in *clausa*, *robusta* and *convicta*) in its entire extent from above. 1
 Thorax not wider than the elytra, side margin very narrow, becoming inferior, at least posteriorly9
1. Elytral punctures very coarse, nearly obliterating the intervals except the intra-humeral, which is costiform; color greenish bronze without ornamentation. **cuprina.**
 Elytral punctures finer, intervals distinct, body above ornate.....2
2. Thoracic margin rather wide, distinctly reflexed.....3
 Thoracic margin narrow, not reflexed8
3. Reflexed margin suddenly narrowed and nearly obliterated just before the hind angles, marginal spot small, posterior..... **scapularis.**
 Reflexed margin a little narrowed before the hind angles which are produced outward in the form of an obtuse lobe.....**maculifera.**
 Reflexed margin equally broad throughout.....4

4. Last ventral without apical plate, thoracic spot triangular, broader behind. 7
 Last ventral with distinct apical plate, thoracic spot elongate, parallel, extending
 in front of the middle 5
 Last ventral with apical plate, thorax without spot, surface lustre deep blue green,
 elytra ornate with small yellow spots. **subcyanea.**
5. Elytra without discal markings, the ornamentation consisting of a yellow marginal
 band extending beyond the middle and two transverse bands before the apex red
 (rarely yellow) **flavomarginata.**
 Elytra with discal markings 6
6. Form very broad, surface lustre greenish, elytra with marginal and discal stripe
 reaching about to the middle, behind which there are several transverse fasciæ,
 all yellow. **amplicollis.**
 Form very broad, surface without metallic lustre, markings much as in *amplicollis*,
 but the dorsal strip broken into spots; apical fasciæ reddish at sides. **disjuncta.**
 Form less broad, surface more or less bronzed, elytra without discal stripe.
 Prosternum coarsely rather densely punctate **opacula.**
 Prosternum finely sparsely punctate **amabilis.**
7. Thoracic margin rather narrow, marginal spot wider behind, surface bluish, elytra
 with transverse fasciæ **macra.**
8. Side margin of thorax only visible near the base when viewed from above.
 More robust; thorax with yellow spot at sides both above and beneath, elytra
 with three broad transverse bands interrupted at the suture and an apical spot;
 last ventral with feeble apical plate. **opaculata.**
 Less robust; thorax, with yellow spot above only, last ventral with broad apical
 plate. **clausa.**
 Side margin of thorax visible only in front when viewed from above; not robust,
 depressed, thorax with yellow spot at side, elytra with rather narrow fasciæ,
 apical ventral plate large **convicta.**
9. Thorax with yellow spot at side (except *quadriseriata*) 13
 Thorax unicolored. 10
10. Under surface, more especially the sides of the metasternum and abdomen abund-
 antly clothed with long whitish hairs.
 Second ventral segment rather more finely and distinctly more densely punctate
 at middle than the first; pubescence of abdomen dense, and except at
 sides recumbent.
 Elytra each with two yellow vittæ which are usually somewhat irregular,
 and occasionally broken up into numerous irregularly placed spots.
lanata.
 Elytra with bluish lustre, marked quite uniformly with larger spots as fol-
 lows: a spot at the middle of the base, sometimes wanting, two spots at
 the basal third, a fascia at middle, and three spots near the apex, some-
 times confluent **pubiventris.**
 First and second ventral segments similarly punctate at middle, hairs of
 under surface not recumbent]. **fenyesi**
 Under surface much less conspicuously hairy 11

11. Maculation of elytra consisting of numerous very small spots.....12
 Maculation of elytra consisting of comparatively few much larger spots.
 Thorax scarcely twice as wide as long, sides parallel in basal half or three fourths **recticollis**.
 Thorax more than twice as wide as long, sides not parallel or but for a short distance in front of the base.
 Elytra with a conspicuous discal subbasal spot.
 Upper surface with coppery bronze lustre (.42-.44 inch.) **plagiaticauda**.
 Upper surface black with faint bluish lustre (.28-.36 inch.) . **jocosa**.
 Elytra without discal spot, but with a lateral series of three or four spots, the median largest, the subhumeral small and often wanting.... **coquilletti**.
12. Elytra strongly sinuate behind the humeri, as wide at apical two-fifths as at base, spots very numerous **miliaris**.
 Elytra moderately sinuate behind the humeri, gradually narrower from base to apex.
 Spots more or less numerous, scattered **sparsa**.
 Spots comparatively few and tending to coalesce in narrow transverse lines which do not reach the suture..... **angelica**.
13. Last ventral without trace of double apical margin..... **pulcherrima**.
 Last ventral with more or less distinct apical plate or crest.
 Apical plate wide, the free edge thin and broadly evenly rounded: elytra blue black with numerous yellow spots..... **serena**.
 Apical plate similar in form but much smaller, surface bronzed.
 Robust more convex, elytra with broad fasciæ interrupted at suture. . **tuta**.
 Depressed, elytra with irregular markings..... **hepburnli**.
 Apical crest thick, angulate posteriorly, size small..... **quadriseriata**.

A. cuprina *Spin.*, Ann. Ent. Soc. Fr., 1838, p. 367.

No examples of this species so far as I am aware, have been reported from our territory, except the single one in the Leconte collection, which is said to be from Texas. There are specimens in the Horn collection from Mexico, and as remarked by that author, it is very doubtful if it should be retained in our list. The rows of very coarse punctures, so closely placed as to nearly obliterate the intervals (except the intra-humeral, which is quite strongly costiform nearly to the tip) give it an aspect which is only in some degree approximated by *scapularis* and *cubacola*, two other subtropical forms, occurring respectively at Cape San Lucas and in the Florida Keys. Length, 11.5 mm., .46 inch.

Habitat: Texas? Mexico.

A scapularis *Horn*, Proc. Cal. Acad. Sci., IV, p. 369, Pl. VIII, Fig. 6.

A large species, very strongly attenuate posteriorly, the markings nearly as in *flavosticta*. The sudden narrowing of the thoracic margin

immediately before the hind angles is a peculiar character which has not been noticed elsewhere. The last ventral is without apical plate. Length, 13 mm., .52 inch.

Habitat: Sierra El Chinche (Cape Region, Baja, Cal.).

A. flavomarginata Gray, An. King., I, p. 358, Pl. XXXI, Fig. 2.

A well known and easily recognizable species. The subapical bands are sometimes connected on the disk, giving the appearance of a broader band enclosing spots as described by Horn. The fifth elytral interval is feebly costiform. According to Horn the last ventral is "without trace of double margin or carina at tip." In nine of the ten examples before me, the carina is as distinct as is usual in the genus, and in the tenth is evident though feeble. The markings are occasionally entirely yellow. Length, 8-12.5 mm., .32-.50 inch.

Habitat: Southwestern Texas to southeastern California, and in Lower California (Cape San Lucas).

A. maculifera Horn, Proc. Cal. Acad. Sci., IV, p. 382, Pl. VIII, Fig. 5.

A large, very broad, and strongly depressed species, the elytra yellow with rounded black spots. The coloration is peculiar, and the formation of the hind angles of the thorax as described in the table has no parallel in our fauna and does not seem to have been fittingly described by Horn. The apical plate is strongly developed, broad, with free edge only feebly rounded. Length, 10.5-12 mm., .42-.48 inch.

Habitat: Texas, New Mexico (Las Cruces).

I have seen but two examples, the type from the former, and a specimen submitted by Mr. Wickham from the latter locality. This specimen was taken by Cockerell and bears the label "On *Bigelovia*, sp. Sept. 23."

A. subcyanea, sp. nov.

Closely agrees with the two following species in form and size. Black with very distinct blue-green lustre. Thorax without spot at sides, closely punctate, lateral margin a little less broad than in *amplicollis*, but reflexed and visible throughout from above. The elytra have the discal punctures distinctly finer than in *amplicollis* or *disjuncta* and are irregularly marked with small yellow spots, representing a discal and marginal series, which become confused behind the middle. Abdomen more finely and a little less closely punctate than

in *ampliocollis*, the apical plate well developed, broad with the free edge thin and subtruncate. Length, 11 mm., .44 inch.

Habitat: Arizona.

A single specimen in the Horn collection, evidently allied to *ampliocollis*, *disjuncta*, etc., by the broad depressed form and thoracic characters, but easily distinguished from all by the unspotted thorax, blue-green lustre and maculation of the elytra, which more nearly resembles *ornata* than any of the species with which it is structurally associated. In *subcyanea*, as is usual, the punctuation of the thorax increases in density from the middle to the lateral margin where it is more or less cribrate, but in those species with yellow marginal stripe it will be observed that the yellow area is generally distinctly less densely punctate than the adjacent surface.

A. ampliocollis Lec., Proc. Acad. Sc. Phil., 1866, p. 383.

A very easily recognized species, and one which varies but little in coloration judging from the one hundred or more specimens which have come before me. Length, 9-13 mm., .36-.52 inch.

Habitat: All specimens seen are from the southern portions of Arizona.

A. disjuncta, sp. nov.

Very similar in form, size and markings to *ampliocollis*, from which it differs as follows. The color is black without metallic lustre; the thorax exceeds the elytra slightly less in width, and is less closely punctate; the marginal elytral stripe in *ampliocollis* is here more or less broken, and the discal stripe is replaced by a series of three spots, the posterior sometimes connected with the margin; the apical fasciæ are more broken and are invariably red at the sides. The hairs of the upper surface, more especially of the thorax, are darker in color. The fifth interspace of the elytra is slightly but distinctly elevated in basal half in *ampliocollis*, not at all so in *disjuncta*. The under surface is not quite so strongly punctate, and is black, not greenish as in *ampliocollis*. Length, 9-12 mm., .36-.48 inch.

Habitat: Arizona.

Described from a series in the Horn collection, the larger of which were placed with *ampliocollis*, and the smaller with *opacula*. They are perfectly homogeneous and undoubtedly distinct from *ampliocollis*, and have a very different look from the type of *opaculus*, though it must be confessed that the status of this latter species is not very well defined.

A. opacula *Lec.*, Proc. Acad. Sc. Phil., 1859, p. 69.

I have seen nothing just like the Leconte type, which however seems to have been collected in alcohol and has not, perhaps, quite its normal appearance. The specimens which Horn mentions from Arizona are quite surely distinct from the type, and are described above under the name *disjuncta*. The character given in the table for the separation of *opacula* and *amabilis* is the one given by Horn. This difference is evident enough in the types, but there is scarcely anything in the descriptions to support it, and I cannot think it of much value in itself. We must wait for more specimens. Length, 10.5 mm., .42 inch.

Habitat: Texas (El Paso).

A. amabilis *Horn*, Trans. Am. Ent. Soc., VII, p. 7, Pl. I, Fig. 3.

The relation of this species to *opacula* is alluded to above. As compared with *ampliocollis* it is decidedly more slender, with the thorax less narrowed in front. The marginal thoracic stripe is very narrow; the apical ventral plate is strongly rounded or subangulate, with free edge inclined to be a little irregular. The markings do not vary much in the specimens before me and are well represented by Horn's figure. The apical band is always red in great part. Length, 8-11 mm., .32-.44 inch.

Habitat: New Mexico and Arizona.

Taken by Prof. Snow in some numbers in the Magdalena Mountains of New Mexico, and a considerable series has lately been received from southeastern Arizona by Mr. Daggett.

A. macra *Horn*, Trans. Am. Ent. Soc., VII, p. 8, Pl. I, Fig. 5.

As remarked by Horn, this species is more strongly arched when viewed in profile than any others except *alacris* and *comata*. It most nearly resembles *serena* in color, but that species is spotted (not fasciate), and with different thoracic margin. The apical plate is entirely wanting in all specimens seen, a character quite unusual in this section. Length, 7.5-11 mm., .30-.44 inch.

Habitat: Texas.

A. robusta *Horn*, Trans. Am. Ent. Soc., VII, p. 9, Pl. I, Fig. 7.

I have seen only the two specimens from which the description was drawn. The side margin of the thorax, visible only posteriorly when viewed from above, combined with the presence of the yellow spot on the inferior margin of the thorax distinguish the species from any

other in our fauna. The first named character is shared by *clausa*, and the last by *cubæcola*. Length, 10-11 mm., .40-.44 inch.

Habitat: California (Owen's Valley).

A. clausa Horn, Proc. Cal. Acad. Sci., 1894, p. 374. Pl. VII, Fig. 3.

A pretty species, of medium size, and having no close allies. Its distinctive character lies in the fact that the side margin of the thorax is more clearly visible from above toward the base than in front, a reversal of the ordinary condition and noted elsewhere only in *robusta*. The elytra have more often a bluish rather than a bronze luster, as described by Horn, and the thorax is invariably a little wider at base than the elytra. I have, therefore, removed it from the neighborhood of *tuta* and *hepburnii*, with which it is associated in the description. The prosternal margin is feebly trisinuate; the apical plate large, its free edge rather thin and evenly rounded. Length, 7.8-10 mm., .31-.40 inch.

Habitat: Cape region of Lower California.

A. convicta, sp. nov.

Moderately slender, depressed, distinctly bronzed, thoracic margin rather broadly yellow from apical fourth to base, the yellow spot a little broader behind. Elytra with four transverse fasciæ as follows: the first, subbasal, extending from the scutellar region obliquely outward and backward to margin; second, median, posteriorly curved; third, at apical third, oblique; fourth, subapical; the last two broken. In addition there is a minute spot beneath the humerus, a narrow marginal stripe between the first and second fasciæ, a small marginal spot between the second and third fasciæ and a small apical spot. Head rather deeply longitudinally impressed, vertical carina feeble. Thorax very slightly more than twice as long as wide, widest at basal two-fifths where it is very slightly wider than the elytra, moderately narrowed in front, side margin inferior except toward the apex, surface moderately closely but not densely punctate. Elytra feebly striate on the disk, more deeply at sides and tip, intervals uniseriately punctulate. Hairs of upper surface short, brownish. Beneath bronzed, abdomen with slight violaceous lustre, evenly, not very closely punctate and clothed with short gray hairs. Front margin of prosternum rather feebly trisinuate; last ventral with wide apical plate, the free edge broadly evenly rounded; tarsi distinctly longer than half the tibiæ. Length, 8 mm., .32 inch.

Habitat: Arizona (Santa Rita Mts.): One specimen, collected by Mr. Wickham.

A. lanata Horn, Trans. Am. Ent. Soc., VIII, 1880, p. 148.

This species begins a series which as a rule are more convex than those that precede; they also lack the thoracic spot, the front margin of the prosternum is strongly toothed each side, and the apical ventral plate is thicker.

Lanata was described by Horn as related to *pubiventris*, but differing in abdominal sculpture and vestiture. On careful comparison I am unable to discover any material difference in the ventral punctuation of the two species, which is substantially as described of *lanata*. The first segment is sparsely finely punctate at middle, and quite densely at sides as is almost universally the case; the following segments are finely rather densely nearly evenly punctate throughout. The contrast between the punctuation of the first and second segments at middle is striking, and peculiar in this group. All the specimens of *pubiventris* in collections, so far as I know, were taken in Owen's Valley, Cal. They were apparently long immersed in alcohol, and the vestiture is almost entirely removed from the upper surface, and from the abdomen except at the sides. I have no doubt that fresh specimens would agree perfectly with *lanata* in this respect, as they certainly do in abdominal sculpture. The markings of *pubiventris* consist of rather large yellow (darkened by alcohol) spots, and are quite constant as described by Horn. *Lanata* is typically vittate, but a series from Utah and the desert regions of Southern California shows forms varying from regularly through irregularly vittate to confusedly maculate. In none of these are the size and disposition of the spots, nor is there present the well-defined bluish surface lustre of the latter (one example of *lanata* is very faintly bluish), but it may well be doubted if *pubiventris* is anything more than a local race of the more widely diffused *lanata*. Length, 7.5-10.5 mm., .30-.42 inch.

Habitat: Utah and desert regions of Southern California.

A. pubiventris Horn, Trans. Am. Ent. Soc., VII, p. 9, Pl. I, Fig. 7.

See remarks under the preceding species. Length, 8.5-10.5 mm., .34-.42 inch.

Habitat: California (Owen's Valley).

A. fenyessi, sp. nov.

Moderately stout, somewhat depressed, piceous, feebly bronzed, clothed with long, fine erect hair, which is usually fuscous (sometimes paler) above, and grayish-white beneath. Head feebly impressed, vertical carina indistinct. Thorax twice as wide as long, sides usually straight for a short distance before the base, then gradually rounded to apex; occasionally a little dilated before the base; lateral margin not visible from above except near the front angles; surface moderately strongly punctate, densely at sides, the punctures well separated at middle. Elytra with striae of rather coarse punctures, intervals uniseriately punctulate, the fifth sometimes slightly elevated as far as, or even beyond the middle; maculation consisting of small

yellow or reddish yellow spots arranged in discal and lateral series of four or five each, the corresponding spots at and behind the middle sometimes confluent. Abdomen rather finely and sparsely punctate, clothed with long hair which is unusually dense and conspicuous toward the sides of the body. Front margin of the prosternum with a stout blunt tooth on either side. Last ventral with distinct apical plate which is rather thick and strongly narrowed or subangulate posteriorly. Length, 8-11 mm., .32-.44 inch.

Habitat: Various localities in southern California between the mountains and the coast.

The spots are usually very small and sometimes nearly wanting, but I do not remember to have seen a specimen in which they are entirely absent. The lower surface is more conspicuously hairy than in any other species except *lanata* and *pubiventris*, from either of which it is at once distinguished by the hairs of the ventral surface being erect and the form more depressed. Small specimens are greatly like *dolorosa* in general appearance, but the latter has a very different prosternum; on the other hand, large nearly immaculate specimens resemble *morbosa*, but this also is a species of the next group and is normally hairy beneath. *Fenyessi* is by no means rare and is doubtless represented in many collections. In local collections it has for some reason or other passed as *sparsa*, a non-related species which does not occur in California at all, and it is not unlikely that it has been sent east under this name. For many of the specimens before me I am indebted to the diligent collecting of my friend, Dr. Fenyess, of Pasadena, to whom I take great pleasure in dedicating the species.

A. reticollis, sp. nov.

Robust, parallel, feebly depressed, black without teneous lustre, clothed above and below with sparse short grayish hairs, thorax without markings, elytra maculate with yellow and red. Head not very densely punctate, feebly impressed, thorax distinctly less than twice as wide as long, sides parallel in basal half or three fourths, thence rounded to the apex; lateral margin visible from above only in front, surface moderately closely not coarsely punctate on the disk, more densely and coarsely at sides; impressions rather feeble. Elytra of same width as thorax, sides parallel to behind the middle, umbones not prominent, striæ not impressed on the disk, punctures moderate, intervals more strongly punctate than usual. The maculation may be described as two rows of spots, one discal and the other lateral, the median and post-median pairs of spots confluent. The discal series begins with a spot at the extreme base, the corresponding marginal spot being very small; the apical spots are more or less reddish. Prosternum with a prominent tooth each side of the middle; abdomen finely punctulate at middle, basal segment densely and more coarsely at sides as usual; last ventral with short thick angulate apical carina. Length, 10 mm., .40 inch.

Habitat: One example from Winslow, Arizona (Wickham), another in the Horn collection from New Mexico.

Nearest *plagiaticauda*, but differing somewhat in markings and distinctly in its different shaped and less transverse prothorax. *Recticollis*, *plagiaticauda*, *jocosa* and *coquilletti* form a group of rather closely allied species, agreeing well in the form of the prosternal margin and the character of the apical ventral plate. The two last are much smaller than the others and very constant in markings. Their separation by means of the tabular characters could not be difficult.

A. plagiaticauda Horn, Trans. Am. Ent. Soc., VII, p. 10, Pl. I, Fig. 8.

A large species, which is apparently rare. I have seen only three examples, viz., one specimen each in the cabinets of Leconte and Horn, the third collected by Coquillett in Los Angeles county, Cal., and differing from the type in that the spots are in part yellow instead of being entirely red. The prosternal cusps are very prominent, the apical ventral plate thick and acute behind with somewhat uneven outline. Length, 11 mm., .44 inch.

Habitat: California (Mariposa and Los Angeles counties).

A. jocosa, sp. nov.

Moderately robust, black, shining, without metallic lustre. Elytra each ornamented with a longitudinal series of four yellow spots; the first rather large, within and posterior to the umbone; the second median large, subtransverse reaching from the third or fourth stria to the lateral margin; the third smaller and nearer the suture, the fourth smallest, subapical. There is a red marginal spot at the apical third which may or may not be connected with the third discal spot. The head is densely punctured as usual, front moderately convex, vertex without carina. Thorax not wider than the elytra, twice as wide as long, sub-parallel to middle, thence moderately rounded to the apical angles, lateral margin not visible from above; disk very finely and sparsely, sides more coarsely and closely punctate. Elytra subparallel to apical third, umbone moderate, stria punctures not coarse, intervals nearly flat on the disk, uniseriately punctulate; erect hairs rather long, fuscous on the elytra, fuscous, mixed with cinereous toward the base, on the thorax. Prosternum trisinate with stout cusps, sparsely punctured at middle. Abdomen very finely sparsely punctulate at middle, a little more coarsely and closely at sides. Last segment with narrowly rounded rather thick apical plate. Length, 7-9 mm., .28-.36 inch.

Habitat: Foothills of the Sierras of southern California.

This species does not exhibit much variation; there may be a small spot external to the basal, and there is occasionally a very small apical marginal red spot, which is seldom present on both sides.

A. coquilletti, sp. nov.

Elongate, rather slender, scarcely depressed, black, strongly bronzed, clothed with rather long erect hairs, which on the upper surface are brownish throughout except for an intermixture of cinereous on the thorax. Elytra with three more or less transverse lateral spots, the anterior median in position and largest, the two others reddish externally; there is also occasionally a very small yellow subhumeral spot. Head densely punctate with a more or less evident vertical carina. Thorax not twice as wide as long, widest at base, sides feebly arcuate, moderately narrowed anteriorly; disk rather sparsely, sides closely punctate; lateral margin visible from above only in front. Elytra as wide as the base of the thorax, striæ not impressed on the disk, intervals flat, finely uniseriately punctate. Body beneath rather sparsely punctate, not much more closely at sides, sparsely clothed with moderately long grayish hair. Prosternum rather strongly sinuate in front; last ventral with rather thick apical plate which is narrowly rounded or subangulate posteriorly. Length, 7.5-8 mm., .30-.32 inch.

Habitat: California (Los Angeles county).

Described from a series of seven specimens taken by Mr. Coquillett, whose name I am pleased to use for the species.

A. miliaris Horn, Trans. Am. Ent. Soc., VII, p. 10, Pl. I, Fig. 9.

This and the following species are very closely allied, and the characters given for their separation in Horn's table are not reliable; in fact, the much more common *sparsa* has circulated extensively as *miliaris* and doubtless stands as such in many collections. There is, however, little doubt that the species are distinct, and the best distinguishing character is the form of the elytra as given in the table. In addition it may be said that the spots are more numerous in *miliaris*, the abdomen is more strongly punctate, the prosternal cusp is less strong, and the lateral impressions of the thorax are inclined to be less developed anteriorly. The apical plate is moderately thin and subacutely rounded in both *miliaris* and *sparsa*. Length, 8-10.5 mm., .32-.42 inch.

Habitat: I have seen only some seven or eight examples, all from Texas.

A. sparsa Horn, Trans. Am. Ent. Soc., VII, p. 11, Pl. I, Fig. 10.

For comparison with *miliaris* see remarks under that species. The type specimens came from Colorado and are rather more sparsely punctate and less spotted than those from New Mexico and Arizona. These latter area pparently *venusta* Waterh., judging from the figure in the Biologia. The apical marginal spots are more or less red as in *miliaris*, though not so mentioned by Horn in his description. Length, 8.5-12.3 mm., .34-.49 inch.

Habitat: Colorado (Colorado Springs), New Mexico (Magdalena Mts., Snow), Arizona (Fort Huachuca, Daggett), Utah (Fuchs).

A. angelica, sp. nov.

Moderately robust, shining, black not bronzed, clothed sparsely with fine erect hairs, which are fuscous above and grayish beneath. Elytra marked with four transverse series of small spots, yellow on the disk and usually reddish at the side, more or less coalescent into narrow transverse bands, which reach the margin but not the suture. The post-humeral spots are frequently nearly obsolete and never coalesce into a well defined band. Head densely punctate, vertical carina not distinct. Thorax not wider than the elytra, widest at base, sides feebly rounded, moderately narrowed from the base; margin visible in front from above; disk coarsely closely punctate at sides, more finely at the middle where the punctures are separated by their own diameter. Punctures of elytral striae rather coarse, intervals rather narrow, flat on the disk, and uniseriately punctulate as usual. Body beneath bronzed, ventral segments rather uniformly not very closely punctate; last ventral with thick angulate apical crest; prosternum distinctly but not very strongly trisinuate. Length, 6.5-9 mm., .26-.36 inch.

Habitat: California (Los Angeles Co.).

More than thirty examples are before me, exhibiting a considerable amount of variation in form and punctuation of thorax and elytra. The thorax is in some examples a little widened before the base, but is not in any case wider than the elytra across the humeri. The antennae are distinctly more slender in certain specimens which might be considered distinct were not intermediate forms present.

A. pulcherrima *Dur.*, *Ins. Cuba*, 1857, p. 56.

Moderately depressed, black, thorax usually more or less aeneous, elytra with slight bluish or greenish lustre. Hairs of upper surface pale, rather short and not very fine. Thorax with elongate orange spot at sides, elytra each with seven rounded orange colored spots arranged in two longitudinal rows, the apical spot forming a part of both discal and marginal series. Specimens will probably occur with the spots more or less confluent transversely. The last ventral is entirely without double apical margin. Length, 8 mm., .32 inch.

I have seen three examples labelled "Metacumbe Key, Fla." The identification of this species and *cubacola* is due to the late Mr. Linell and I have not thought it necessary to verify the conclusions of so careful a student.

A. serena, sp. nov.

Form moderate, somewhat depressed, black, elytra very deep blue, very sparsely clothed above with short semi-erect pale hairs. Head not very densely punctate, a faint vertical carina. Thorax not wider than the elytra, nearly twice as broad as long,

narrowed from base to apex, side margin narrow, inferior behind; punctures on the disk rather fine, separated by more than their own diameters on the average, coarser and more closely placed laterally; impressions moderate, side margin narrowly yellow in basal three fourths. Elytra with numerous yellow spots of varying size and shape irregularly dispersed; base equal in width to the prothorax, gradually narrowed from base to apex, striae moderate, impressed at sides and apex, intervals flat, each with a single series of fine punctures. Beneath clothed with rather sparse grayish hairs. Prosternum feebly trisinate in front; abdomen finely evenly not closely punctate, last ventral with large apical plate, the free edge thin and very broadly rounded. Length, 9-9.5 mm., .36-.38 inch.

Habitat: Arizona (Tucson).

Described from two specimens collected and communicated by Mr. Wickham. *Serena* resembles both *macra* and *clausa* quite closely. As compared with *macra* the thoracic margin is narrow and not visible throughout from above, the form is less arcuate when viewed in profile, the markings are more broken, and the apical ventral plate which is nearly wanting in *macra* is here strongly developed. From *clausa* it may be separated by the more sparsely punctured thorax, and the thoracic margin becoming inferior behind as is usual.

A. tuta Horn, Trans. Am. Ent. Soc., VII, p. 11, Pl. I, Fig. 11.

I have seen but four specimens of this species and these present no variation from the description and figure given by Horn. The prosternum is feebly trisinate, the apical ventral plate very narrow, nearly truncate with thin free edge. Length, 8-9.5 mm., .32-.38 inch.

Habitat: Utah and desert portions of California (Death Valley).

A. hepburnii Lec., Trans. Am. Phil. Soc., 1859, p. 254.

A species which there is no danger of mistaking for any other in this group, but which might easily be confused with *connexa*, *acuta* and *labyrinthica* of the following group. The prosternum while not at all strongly trisinate is sufficiently constant so to warrant its present position. The thorax varies very little in form, is never wider than the elytra, and is narrowed from base to apex, while in *acuta*, etc., the thorax is oftenest widest a little in front of the base, and frequently more or less distinctly wider than the elytra. Again, in these species the thoracic spot is rarely present and the side margin of the elytra beneath the humerus is always black in part; in *hepburnii* the thoracic spot is absent in only three of the forty-five specimens before me, and the elytral margin at the humerus is entirely yellow. The apical ventral plate is narrow, the free edge thin and broadly evenly rounded. Length, 8.7-12 mm., .35-.48 inch.

Habitat: A rather common species west of the California Sierras nearly throughout the length of the state.

A. quadriseriata, sp. nov.

Form cylindro-conic, feebly depressed, piceous, somewhat bronzed, clothed with fine erect blackish hairs. Head with fine vertical carina, punctures large, shallow, closely placed. Thorax twice as wide as long, widest at basal third, where the sides are strongly rounded, apex much narrower than base; surface not very closely punctate on the disk, more densely at sides; median and basal impressions rather feeble, lateral margin inferior posteriorly. Elytra wider than the thorax, sides sinuately narrowed to apical third, thence more rapidly to apex; punctures of striae rather fine, intervals flat except at sides, uniseriately punctulate; each elytron marked with two longitudinal series of four or five elongate yellow spots, one discal the other lateral. Beneath more plainly bronzed, sparsely clothed with pale hairs; abdomen rather finely and sparsely punctate, last ventral with thick apical carina, the free edge more or less uneven and narrowly rounded. Length, 5.5-7 mm., .22-.28 inch.

Habitat: Twelve examples are before me, all from southern California (Los Angeles and Santa Barbara Counties).

The present species well illustrates the inexactness of the form of the prosternum as a basis for a natural group division. The form is here a little variable and may be nearly paralleled in any one of the three larger groups—Sinuatae, Emarginatae or Truncatae. A strict interpretation would exclude it from the last, and I believe it may best be assigned to the Sinuatae. It resembles very closely in color certain small forms of *acuta*, but is more pointed behind and with very different last ventral. The maculation is quite constant so far as seen.

ACMEODERÆ EMARGINATÆ.

Attention has already been called to the fact that the front margin of the prosternum in this series is usually in some faint degree trisinate, and when this is more pronounced than usual, as it is likely to be in individuals of almost any species, a survey of both groups may be necessary for identification.

I have removed *mariposa* from the Truncatae and placed it in the present series next to *dohrni*, with which it is very closely allied, if not actually identical. This course is justified by an examination of the prosternum, which is really retracted in all specimens seen, though in varying degree. The form of the prothorax seems less stable here than in either of the other groups, and the thoracic spot is less constant than elsewhere, its presence or absence being fortuitous in six of the ten species in which it occurs.

The nineteen species now recognized separate as follows:

- Thorax with lateral margin yellow in more than basal half. 8
 Thorax unicolorous or with only a small lateral yellow spot behind the middle. 1
1. Last ventral with thick subapical crest which is subangulate at middle. 6
 Last ventral without apical crest (except rarely in *connexa*). 3
 Last ventral with thin apical plate which is not subangulate at middle (sometimes feebly developed or nearly obsolete in *acuta* and *labyrinthica*). 2
2. Thoracic margin narrow, not reflexed, not or scarcely visible posteriorly from above.
 Surface bronzed without spots. **morbosa**.
 Surface bluish, elytra with scattered small yellow spots. **ornata**.
 Surface bronzed, elytra with yellow markings.
 Markings more constant, a lateral transverse spot at the middle of the elytra being most conspicuous; form depressed. **flavosticta**.
 Markings more intricate and very variable.
 Form narrower, less depressed, punctures of elytral striæ finer. **acuta**.
 Form broad, depressed, punctures of elytral striæ coarser.
labyrinthica.
 Form depressed, strongly narrowed posteriorly. **cuneata**.
- Thoracic margin slightly reflexed, visible throughout from above; elytra with numerous small yellow spots, often intricately joined, sides at tip red. **rubronotata**.
3. Thorax widest at base, form rather narrow, less flattened. 5
 Thorax more or less distinctly widest a little in front of the base, and usually slightly wider than the elytra; form broader and more flattened. 4
 Thorax widest at middle 7
4. Elytra with yellow markings on the disk.
 Form more slender and more gradually narrowed behind; thorax without lateral spot, yellow markings of the elytra irregularly longitudinally joined toward the base. **connexa**.
 Form less slender, more parallel, and less gradually narrowed behind; elytra with three more or less irregular transverse bands not reaching the suture, and an apical spot. **variegata**.
 Elytra with a few (mostly lateral) small orange red spots which show a tendency to coalesce transversely **van dykei**.
 Elytra with three or four lateral yellow spots, that at the middle being largest.
prorsa.
5. Bronzed, sides of thorax more strongly rounded, elytra with three reddish spots at the sides behind the middle, the middle one extending inward. **dohrni**.
 Blue, sides of thorax less rounded, elytra with same markings **mariposa**.
6. Piceous, faintly bronzed, elytra with a few inconspicuous yellow spots toward the sides. **dolorosa**.
 Cupreous, elytra each with two apical marginal red spots **postica**.
7. Sides of elytra entirely yellow, inner margin strongly indented, no discal markings. **horni**.
8. Outer interval of elytra acutely tuberculate behind the middle. **daggetti**.
 Outer interval of elytra not tuberculate
 Thoracic margin reflexed, plainly visible throughout from above. **decipiens**.
 Thoracic margin narrow, not reflexed **scalaris**.

A. morbosa, sp. nov.

Moderately robust, somewhat depressed, elytra slightly, pronotum and under surface rather strongly bronzed, entirely without markings; erect hairs whitish beneath, dark and paler intermixed above. Head with indistinct vertical carina, thorax twice as broad as long, very slightly wider before the basal angles, moderately rounded and narrowed anteriorly, side margin posteriorly not visible from above; rather closely punctate, more densely at sides. Elytra as wide, or very nearly so, as the thorax, humeri not prominent, sides very slightly convergent to a little behind the middle, then more rapidly to apex; striae and punctures moderate. Prosternum with front margin retracted and slightly but distinctly sinuate. Abdomen rather strongly but not closely punctate, last segment with very small apical plate. Length, 9 mm., .36 inch.

Habitat: Two examples, Los Angeles Co., California, collections of Dr. Fenyès and myself.

Structurally very close to *labyrinthica* and possibly an immaculate variety of that species, but in the many specimens of the latter that I have seen, there is no tendency whatever toward even a noticeable reduction of the yellow markings.

A. flavosticta Horn, Trans. Am. Ent. Soc., VII, p. 9, Pl. I, Fig. 6.

The thorax is said to be unicolored in the description and it is usually so in specimens from Lower California. In those from southern California the marginal spot is about as often present as absent. The apical ventral plate is thin with posterior edge nearly squarely truncate. Length, 7-10.3 mm., .28-.41 inch.

Habitat: The twenty-one examples before me range from Cape San Lucas as far north as Riverside, Cal. It was taken in some numbers in San Diego Co., by Mr. Coquillett, and is apparently a common species in the Peninsula.

A. acuta Lec., Trans. Am. Phil. Soc., Ser. 2, XI, p. 224.

Unquestionably distinct from *connexa* in my opinion, the doubts expressed by Horn arising from the including under this name the form which I have separated as *labyrinthica*. See remarks under *labyrinthica*. Length, 5-9 mm., .20-.36 inch.

Habitat: Our commonest Californian species, occurring nearly everywhere in the mountains and foothills from San Diego to Shasta. I have never seen typical examples from east of the Sierras, though it is not unlikely that it extends into Nevada in the Lake Tahoe region. Horn gives also Utah, but his specimens from that locality are *labyrinthica*.

A. labyrinthica, sp. nov.

This name is proposed for a form which is indiscriminately mixed with *connexa* and *acuta*, according to the size of the specimens or the taste of the individual. It may usually be separated at a glance from both by its stouter form and the more profuse and irregular markings of the elytra. Like *connexa* the form is strongly depressed, but is less gradually narrowed posteriorly and with more distinct bronze lustre. The thorax in *connexa* is usually conspicuously wider than the elytra and widest immediately before the base; in *labyrinthica* the thorax is less noticeably though usually slightly wider than the elytra with the broadest part a little less basal and with a more evident sinuation before the hind angles which are consequently a little less obtuse. The abdominal punctuation is a little less fine in *labyrinthica*, the last ventral shorter with the apical carina often very small, but rarely lacking. From *acuta*, *labyrinthica* differs by the flatter form and much coarser striae punctures. In both there is rarely a small yellow spot at the side of the thorax, but I have never seen this in *connexa*. In many specimens of *labyrinthica* the last ventral suture is broadly feebly sinuate or subangulate at the middle; not noticeably so in *acuta* or *connexa* in my experience.

Typical *connexa*, *labyrinthica* and *acuta*, and even after allowing for a considerable variation the great majority of specimens are such, are easily separable, but there are not lacking specimens which are very disconcerting. It is possible that these are only additional forms which indicate a single excessively variable species; it is, however, quite as likely that they are representatives of still other closely allied species and, perhaps, still more probable that we have to do with a complex combination of completely and incompletely differentiated forms which the presence of hybrids may render still more confusing. Whatever may be the true status, the separation of *labyrinthica*, either as a species or a subspecies, goes far toward relieving our series of *connexa* and *acuta* of that heterogeneous appearance which is nowhere better illustrated than in the Leconte and Horn collections. Length, 7.5-10.5 mm., .30-.42 inch.

Habitat: Inhabits nearly the same region in California as *acuta*, though I have not seen specimens from quite so far north, and also extends its range into Nevada and Utah.

A. cuneata, sp. nov.

Depressed, strongly narrowed behind. Head rather deeply, broadly impressed.

Thorax a little wider than the elytra, shaped nearly as in *connexa*, moderately coarsely closely punctate, unicolorous, a small indistinct spot in one example. Elytra intricately ornate with yellow, the markings much as in *labyrinthica*, but broader and less diffused. Sculpture of elytra and lower surface nearly as in *labyrinthica*. Length, 8-10 mm., .32-.40 inch.

Habitat: Southwestern Utah and Arizona (Rio Verdi and Tempe Desert).

Two specimens from the former locality in the Horn collection and others from Arizona in the collection of Dr. Griffith, to whom I am indebted for my representatives. *Cuneata* is nearest to, but apparently distinct from *labyrinthica*, from which it is difficult to separate it by description, though quite different in appearance. The strongly narrowed and pointed elytra are characteristic of all the specimens seen, and will, I think, make its recognition tolerably certain. From *connexa* it differs both in form and markings, and in the much deeper frontal impression. *Labyrinthica* occurs in the same region, but *connexa* has not yet been seen from either Utah or Arizona.

A. *connexa* Lec., Proc. Acad. Sc. Phil., 1859, p. 72.

For comparison with *acuta* and *labyrinthica*, see remarks under the last named species. The markings in *connexa* are tolerably constant, especially the oblique fascia at the apical third and the apical spot; the markings in the basal half of the elytra are confusedly joined, but are very rarely in any way connected with the posterior fascia. The apical ventral plate is nearly or quite lacking in most examples, but is occasionally well-defined though small. I have never seen a specimen with a thoracic spot. Length, 8-12.5 mm., .32-.50 inch.

Habitat: California and Nevada. A somewhat common species in the sierras of California, not reaching either the extreme northern or southern portions of the State so far as known.

A. *variegata* Lec., Proc. Acad. Sc. Phil., 1852, p. 67.

This species may be separated quite certainly from all others by the tabular differences. It is nearest *connexa*, but if typically marked may be at once distinguished by the transverse fasciæ. These fasciæ are, however, quite often much broken, in which case the stouter, more parallel form, coarser sculpture, with the thorax widest further in front of the base will make it recognizable. The thoracic spot is about as often absent as present, the thorax is usually not wider than the elytra, but is occasionally distinctly so. There is no apical ventral plate. Length, 7.75-10 mm., .31-.40 inch.

Habitat: Colorado, Utah, California (desert regions), Oregon (Hood River).

A. ornata *Fab.*, *Syst. Ent.*, p. 220.

This common and widespread species is too well known to need any comment.

Habitat: Pennsylvania, Florida, Texas, Utah, Nevada.

37. **A. rubronotata** *Lap. & Gory*, *Mon.*, I, p. 5, t. 1, f. 5.

According to the authors of the *Biologia*, the above name should be used for the species now standing on our list as *stellaris* *Chev.*, which is believed to be quite a different thing. *Stellaris* *Spin.*, is doubtfully placed as a synonym of *rubronotata*. This species is easily recognizable by Horn's description and figure. I have seen only the two examples in the Leconte collection. Length, 11.5 mm., .46 inch.

Habitat: Texas, along the Mexican border.

A. van dykei, *sp. nov.*

Form broad, depressed, color piceous with faint bronze lustre, clothed above with fine erect fuscous hairs; elytra maculate with small orange red spots which have a tendency to coalesce into four or five broken transverse bands, none of which reach the suture. Head with distinct vertical carina. Thorax more than twice as wide as long, widest a little before the base, sides strongly narrowed in front, margin more or less distinctly visible throughout from above; surface rather closely, moderately coarsely punctate, impressed as usual. Elytra a little narrower than the thorax, subtriangular, striae moderately punctate, more coarsely at sides as usual; intervals flat on the disk, the third at base and the fifth to a greater extent more or less elevated. Body beneath bronzed, prosternum emarginate in front, abdomen usually sparsely finely punctate though somewhat variable; last ventral without trace of apical plate. Length, 9-12 mm., .36-.48 inch.

Habitat: Ten examples from Washington, California (Siskiyou, Alameda and Los Angeles Counties), Nevada and Utah—Collections of Van Dyke, Fuchs, Horn and Wickham.

I take pleasure in dedicating this species to my friend Dr. Edwin C. Van Dyke, whose collection of Californian *Acmaeodera* is the most extensive I have seen and has in its entirety been very kindly placed at my disposal.

A. prorsa, *sp. nov.*

Moderately robust, subtriangular, depressed, shining, bronzed, hairs of upper surface fine, moderately long and dark brown in color; of the under surface grayish white elytra marked with a series of four more or less transverse lateral yellow spots, that nearest the humerus small and often wanting. Head closely punctate, feebly impressed at middle, vertical carina indistinct. Thorax a little wider than the elytra,

more than twice as wide as long, widest before the base, where it is rather strongly rounded, thence narrowing in nearly straight line to apical angles; dorsal impressions moderate, surface rather closely punctate on the disk, more coarsely and densely at sides. Elytra narrowing gradually from base, disk flattened, striæ not impressed at the middle of the disk, but evidently so at the sides and tip; intervals with the usual series of fine punctures. Prosternum emarginate in front, the margin faintly sinuate; abdomen finely not closely punctate, last segment without trace of apical plate. Length, 6.5-11 mm., .26-.44 inch.

Habitat: California (Los Angeles and San Bernardino Counties).
Ten examples.

Some specimens, perhaps males, are less depressed and narrower, but otherwise there is very little variation observable. The style of maculation is very much like that in *coquilletti*, and the narrower forms look greatly like that species; the resemblance however is entirely superficial. The lateral margin of the thorax is more or less distinctly visible almost throughout from above.

A. dohrni Horn, Trans. Am. Ent. Soc., VII, p. 15, Pl. I, Fig. 21.

This species could scarcely be mistaken for any other though some specimens of *prorsa* in which the anterior marginal spot of the elytra is wanting, and the thorax less distinctly wider than the elytra than usual, are not very different in appearance. The spots in *dohrni* are however always reddish, and in *prorsa* never so. *Dohrni* is really much more closely allied to *mariposa* and it is doubtful if they are really distinct. Aside from color—bronzed in *dohrni* and blue in *mariposa*—the former is distinguished by the more transverse thorax with sides more strongly rounded and as wide or a little wider slightly in front of the base than at base, and the slightly stronger punctures of the elytral striæ. In typical *mariposa* of which I have seen but three examples the thorax is widest at base and the sides are but little rounded. These differences in thoracic outline are not more marked than in several other species and there is before me a specimen which both in color and in shape of thorax is an exact intermediate between typical *dohrni* and *mariposa*. Both forms are as yet too rare in collections to warrant a definite conclusion as to their relationship. Length, 8-9.3 mm., .32-.37 inch.

Habitat: Sierras of California from Los Angeles to Mariposa County.

A. mariposa Horn, Trans. Am. Ent. Soc., VII, p. 22, Pl. I, Fig. 35.

For reference to the transfer of this species from the Truncatæ to the Emarginatæ, see remarks prefatory to the present group. The

relation of *mariposa* to *dohrni* is alluded to under the latter species. The only specimens known to me are the type, and single examples in the collections of Messrs. Fuchs and Van Dyke. Length, 7-8.5 mm., .28-.34 inch.

Habitat: California (middle Sierras).

A. dolorosa, sp. nov.

Moderately depressed, black, erect hairs rather long, fine, fuscous, slightly intermixed with pale, especially towards the sides of the elytra; elytra marked with very small yellow spots which tend to arrange themselves in four transverse lines. The spots are always small, frequently nearly obsolete or in part wanting, and never coalescent into anything like a fascia. Head with fine vertical carina. Thorax twice as wide as long, widest at or a little before the base, not or scarcely wider than the elytra, lateral margin inferior posteriorly; surface closely rather coarsely punctate. Elytra gradually narrowed to apical third, striae distinct except on basal half of disk, punctures rather coarse. Prosternum very feebly sinuate in front; abdomen sparsely punctate, erect hairs rather sparse and pale in color; last ventral with small apical plate. Length, 7-8.5 mm., .28-.34 inch.

Habitat: Thirteen examples are before me, all taken in Los Angeles County, Cal.

Dolorosa closely resembles the more feebly maculate specimens of *angelica*, but aside from prosternal difference, the general form is less parallel and more depressed, the sculpture coarser, the last ventral broader at apex, with the apical plate more broadly arcuate. The resemblance to small specimens of *fenyesi* is also quite close, but this latter may always be distinguished by the strongly toothed front margin of the prosternum, and the more hairy ventral surface.

A. postica, sp. nov.

Moderately robust, subcylindrical, scarcely depressed, coppery bronze, elytra each with two subapical marginal red spots. Erect hairs fuscous, mixed with grayish on the head, thorax, and towards the sides of the elytra. Head with vertical carina. Thorax not wider than the elytra, twice as wide as long, parallel in basal half, thence moderately rounded and narrowed to apex; lateral margin visible from above only in front; disk rather sparsely, sides densely punctate. Elytra parallel to apical third, striae impressed only at sides and apex, punctures rather fine, intervals flat, uniseriately punctate. Front margin of prosternum nearly straight; abdomen finely sparsely punctate, last ventral with ill-defined apical crest. Length, 8 mm., .32 inch.

Habitat: California (Los Angeles Co.).

A single specimen collected by Mr. Coquillett and now in the National Museum collection.

A. horni, sp. nov.

Moderately depressed, black, prothorax and under surface slightly bronzed sparsely clothed above with fine dark erect hairs, beneath with pale hairs; elytra with

the sides yellow from base to apex, the inner margin of the yellow border sending projections to the fourth stria near the base, at the middle and at the apical third, that at the middle being broadest. Front feebly impressed, vertical carina indistinct. Thorax a little more than twice as wide as long, sides nearly evenly, rather strongly rounded from base to apex; widest at middle, where it is just perceptibly wider than the elytra; lateral margin visible from above except posteriorly; surface evenly not densely punctate on the disk, more coarsely and densely at the sides. Elytra nearly parallel in basal three-fifths, then acutely narrowed: stria punctures moderate, finer on the disk as usual, fifth interval somewhat elevated. Prosternal margin nearly straight in front; abdomen rather finely, closely punctate, the basal and terminal segments less closely at middle, and somewhat more coarsely; last ventral without apical plate. Length, 11 mm., .44 inch.

Habitat: Arizona. A single specimen in the Horn collection.

A. daggetti, sp. nov.

Form rather slender, elongate, feebly depressed, black with faint tinge of blue; erect hairs sparse, brownish, intermixed with paler at sides. Thorax with sides yellow in basal two thirds, elytra each with basal and apical spot, and about five intermediate more or less irregular transverse fasciæ, which do not reach the suture and are more or less confluent along the margin. Head closely punctate, deeply impressed, vertical carina distinct. Thorax scarcely twice as wide as long, widest a little behind the middle, sides broadly rounded, base not much wider than apex; surface rather closely evenly punctate, impressions moderate; lateral margin narrow, not distinctly visible posteriorly from above. Elytra not wider than the thorax, gradually feebly narrowed to apical third, stria punctures rather fine, intervals flat on the disk, convex at sides, the outer three each bearing in a little more than apical half a row of acute tubercles, which are most pronounced on the outer interval, and quite conceal the usual serration of the margin when viewed from above. Beneath clothed with rather sparse grayish hairs; prosternum emarginate in front, abdomen moderately finely, not densely punctate, last ventral with broad apical plate, its free edge thin and broadly evenly rounded. Length, 8-11 mm., .32-.44 inch.

Habitat: Arizona (Tucson and Fort Huachuca). Eight examples; collections of Daggett, Fuchs, and National Museum.

A very pretty and graceful species which I take pleasure in naming in honor of Mr. F. S. Daggett, to whom I am indebted for the specimens in my cabinet. The tuberculate elytral intervals readily distinguish it from any other species known to me.

A. decipiens Lec., Proc. Acad. Sc. Phil., 1866, p. 383.

At once known among the members of this group by the rather broad reflexed thoracic margin, which is plainly visible throughout from above. *Scalaris* is the only other species with the thoracic margin similarly visible, but it is here much narrower and not reflexed, while the form is stouter and the markings quite different. *Decipiens* resembles more closely *amabilis* and *opacula* of the *Sinuatæ* than any species

of the present group, and the prosternal characters are not so different as to prevent the confusion. *Decipiens* is however separable from these with certainty by the thorax being much less narrowed in front, and by the thinner, more broadly rounded or subtruncate ventral plate. The markings are also more irregular than in the species mentioned. Length, 7.5-10.5 mm., .30-.42 inch.

Habitat: New Mexico and Arizona.

The only specimens before me with definite locality label are from Fort Huachuca, southeastern Arizona, collection of Mr. Daggett.

A. scalaris *Mann.*, Bull. Mosc., 1837, VIII, p. 25.

A moderately large robust species, black, scarcely bronzed elytra each with a lateral and discal yellow stripe in basal half, and some more or less confused markings posteriorly. The figure and description of Horn are sufficient for the recognition of this species which does not seem to vary much. Length, 9.5-11 mm., .38-.44 inch.

Habitat: Texas, Arizona, New Mexico (Las Cruces, on *Verbesina encelioides*, Cockerell). Mannerheim's name is believed to apply to the insect afterward described by Gory as *mima* and must therefore supplant it on our list.

ACMEODERÆ TRUNCATÆ.

It is not possible to more sharply define the limits of the present group than is done in the preliminary table, in which it is said to contain those species in which the front margin of the prosternum is not or but little retracted, and usually nearly straight. The proper interpretation of the prosternal characters requires so much familiarity with the range both of specific and individual variation, that members of the group at hand will be perhaps more surely recognized by their small size and narrow convex form than by any other characters. No species of this group is notably depressed, none are in the least costate, all except the first four and *cribricollis* are below medium size (.30 inch or less), the hairy vestiture is generally shorter and coarser than in preceding sections, and the thoracic impressions are reduced to little more than basal foveæ. *Mariposa* has been transferred to the Emarginatæ for reasons already given; on the other hand *stigmata* and *bivulnera* are placed here rather than in the Sinuatæ as indicated by Dr. Horn, since with the exception of the prosternum their general structure and facies is entirely in accord with typical Truncatæ. Nor is precedent lacking for such a course, inasmuch as *guttifera* and

versuta, both of which were placed in the Truncatæ by Horn, are nearly as aberrant in prosternal structure. These four species, with *opinabilis*, in which the prosternal margin is obviously sinuate and a little retracted are the only ones that need mention as being conspicuously irregular in this respect. The subapical ventral plate or crest is moderately thin and regular in *alicia*, *pulchella*, *obtusa* and *texana*, (doubtful in *consors*), and thick or lacking in the remaining species. I have used *tubulus* Fab., in place of *culta* Web., in deference to the authors of the Catalogus and Biologia who may be presumed to have a reason for giving priority to the former, though the works of both Fabricius and Weber bear the date 1801. The following table will probably suffice for the identification of most specimens:

- Antennæ with the fifth joint suddenly broader than the fourth, which is cylindrical. 1
 Antennæ gradually broader from the third joint, the fourth joint similar in form to the fifth. 9
1. Last ventral without subapical crest. 7
 Last ventral with more or less distinct subapical crest (feeble or absent in *opinabilis*) 2
2. Thorax without yellow marginal spot (except *opinabilis*). 3
 Thorax with yellow spot at sides.
 Sides of thorax narrowing from base to apex.
 Form narrower, hairs of upper surface nearly white. **alicia.**
 Form stouter, hairs of upper surface brownish **pulchella.**
 Sides of thorax more strongly rounded, widest a little behind the middle. — *cu* ² *Fal*
obtusa.
3. Thorax wider than the elytra, discal impressions as in preceding groups. **consors.**
 Thorax not wider than the elytra, discal impressions feeble. 4
4. Subapical crest of last ventral with thin edge, which is broadly evenly rounded. **texana.**
 Subapical crest of last ventral thick, more or less irregular. 5
 Color blue, or blue green, elytra with red marginal spots. 6
5. Color piceous, more or less bronzed, elytra with yellow markings.
 Hind tarsi a little shorter than half the tibiæ, hairs of upper surface short, setiform.
 Front margin of prosternum straight, thorax without yellow marginal spot. **subalteata.**
 Front margin of prosternum distinctly sinuate, thorax with yellow spot at sides **opinabilis.**
 Hind tarsi distinctly longer than half the tibiæ, hairs of upper surface fine and rather long. **versuta.**
6. Prosternum with a stout tooth each side the middle sinus. **stigmata.**
 Prosternum with a short broad lobe at middle which is broadly emarginate with rounded angles **bivulnera.**

7. Last three ventral segments densely finely punctate and clothed with long fine hairs which curve forward.....**guttifera**.
Ventral segments normally punctate and pubescent.....8
8. Thorax densely cribrately punctate, size larger—.30 inch or more....**cribricollis**.
Thorax more or less closely punctate but never cribrate at the middle; size never exceeding .30 inch, and usually much less.
Elytra maculate.
Larger, more pointed behind, clypeus very broadly emarginate...**conoidea**.
Smaller, less pointed behind, clypeus more deeply emarginate.
Generally larger, more shining, elytral intervals wider, spots distinctly separated, front impressed.....**tubulus**.
Smaller, less shining, elytral intervals narrower, spots always confluent, front convex.....**neglecta**.
Elytra vittate.....**quadrivittata**.
6. Vestiture of under surface scale-like.....**insignis**.
Vestiture of under surface hairy.....**gemina**.

A. consors *Horn*, Trans. Am. Ent. Soc., VII, p. 20, Pl. I, Fig. 30.

I have seen only the type in the Leconte collection and can add nothing to the original description. It is said to be distinguished from any in this group by the sculpture of the prothorax being like that of the preceding group. There is accordingly to the description a "short subapical ventral carina," but in the present condition of the type it is not sufficiently clearly visible to determine its character. Length, 7.5 mm., .30 inch.

Habitat: Texas.

A. pulchella *Herbst*, Col., IX, p. 211, Pl. CLIV, Fig. 6, a, b.

Our most widely distributed and best known species. Length, 5.5-10 mm., .22-.40 inch.

Habitat: Pennsylvania to Florida and westward to eastern California.

A specimen submitted by Professor Cockerell is labeled "Red Mesa, N. Mex., on *Opuntia*, June."

A. obtusa *Horn*, Trans. Am. Ent. Soc., VII, p. 19, Pl. I, Fig. 29.

Resembles some varieties of *pulchella*, but is more obtuse behind and with the thorax widest near the middle instead of at the base. There is also a well-defined greenish-blue surface lustre in place of the bronze of *pulchella*. The elytral fasciæ are sometimes completely broken up into small spots. Length, 8-10 mm., .32-.40 inch.

Habitat: Texas.

A. alicia, sp. nov.

Elongate, subcylindrical, black with faint tinge of blue, thorax with lateral mar-

gin yellow in basal two-thirds, elytra each with margin beneath the humerus, scutellar spot, and four transverse bands which extend from the side margin to the sutural interval, yellow. Head closely punctate, vertical carina distinct. Thorax rather less than twice as wide as long, moderately rounded and narrowed in front, side margin not visible from above, dorsal impressions feeble, the lateral terminating in punctiform basal foveæ; punctuation a little finer at the middle, but dense and nearly uniform throughout. Elytra as wide at base as the thorax, rather gradually narrowed to apex, striæ and punctures moderate, intervals with the usual series of punctures. Hairs of upper surface whitish, inclined backward on the elytra, and forward on the thorax. Prosternum truncate in front, sparsely punctate at middle; abdomen rather closely not coarsely punctate, the punctures nearly uniform in size and distribution; last ventral with distinct apical plate, the free edge thin and feebly arcuate. Length, 9.5 mm., .38 inch.

Habitat: California (Los Angeles Co.), Arizona.

A single specimen from the former locality in the National Museum collection was captured by Mr. Coquillett and has served as the basis of the above description. I have seen three others in the Horn collection (there placed with *decipiens*) from Arizona. The hind tarsi are unusually short, barely equalling one-half the tibiæ.

A. texana Lec., Trans. Am. Phil. Soc., Ser. 2, Vol. XI, p. 228.

A small species of the same general aspect as *tubulus* and *neglecta*, but the hairs are fine and longer, and the ventral plate is thin and well-developed; the thorax is also less narrowed in front. Length, 6.5 mm., .26 inch.

Habitat: Texas.

I know of no examples except the single specimens in the Leconte and Horn cabinets.

A. subbalteata Lec., New Species, 1863, p. 82.

Known only by the unique type in the Leconte cabinet. I have seen two examples from New Mexico, which either belong here or to a closely allied species, but renewed comparison with the type would be necessary to decide the question. Length, 6 mm., .24 inch.

Habitat: Peninsula of California.

A. opinabilis, sp. nov.

Moderately convex, subopaque, the thorax less dull and slightly bronzed, elytra ornate with yellow, upper surface with short whitish suberect setæ which are coarser toward the apex. Head densely punctate, vertex carinate. Thorax scarcely twice as wide as long, sides arcuate and widest a little in front of the base; surface densely punctate, basal foveæ as in *culta*, sides with yellow spot. Elytra a trifle narrower than the thorax, gradually narrowed behind, punctures of striæ coarse, intervals rather narrower than the striæ. The maculation may be described as consisting of about four irregular transverse spots which tend to coalesce longitudinally. Abdomen

coarsely rather closely punctate, last ventral without or with a trace of a thick sub-apical carina. Prosternum sinuate in front and nearly attaining at the sides the anterior angles of the thorax. Hind tarsi barely as long as half the tibiae. Length, 6-7.5 mm., .24-.28 inch.

Habitat: Lower California (San Jose del Cabo).

Mixed with the typical specimens above described are smaller examples having the same general appearance but differing quite constantly in being more pointed behind, in lacking the thoracic spot, in the posternum being almost without trace of sinuation in front, and in the better developed carina of the last ventral. It will be noted that these differences are, except the first, precisely those used to distinguish *subbalteata* from *opinabilis*, but whether they are a variety of *opinabilis* or of *subbalteata*, or a new species, or whether all three are one, is a question for the future student to answer. The specimens before me were received from Mr. Fuchs and bear the label "*texana* teste Horn;" there must however be some mistake here, as the specimens in the Horn cabinet are not placed with *texana* nor does the latter name appear on the list of species from Lower California.

A. tubulus *Fab.*, Syst. El., II, p. 200; *culta* Web. Obs. Ent., I, p. 75.

No comment on this species seems necessary. It is closely allied to *neglecta*, but the tabular characters are, I think, sufficient to separate it. Length, 5-7.5 mm., .20-.30 inch.

Habitat: Eastern United States extending to Texas.

A. neglecta, sp. nov.

This name is proposed for a form occurring abundantly in Texas and heretofore considered merely a form of *tubulus*. The characters given for its separation in the table, viz.—generally smaller size, convex nearly unimpressed front, narrower elytral intervals, and confluent markings are so constant in the large series at hand that I am convinced of its distinctness. I have seen one specimen of *tubulus* from Texas, differing scarcely at all from the typical eastern form. Length, 4.2-5.6 mm., .17-.23 inch.

Habitat: Texas.

A. conoidea, sp. nov.

Convex, pointed behind, surface dull, clothed with short coarse setiform hairs; thorax unicolored, elytra with an irregular median yellow stripe formed by the coalescence of the usual spots. Head coarsely closely punctate, the punctures shallow; front feebly convex scarcely impressed at middle, vertical carina obsolete, cly-

peus very broadly emarginate. Thorax widest a little before the base, not wider than the elytra, sides moderately rounded, surface rather densely punctate, impressions nearly obsolete, the three basal foveæ as usual in the group. Elytra with moderately coarsely punctate striae, intervals subequal in width to the striae on the disk, the ninth and tenth wider. Beneath closely quite strongly punctate, abdomen somewhat shining and with greenish surface lustre; last ventral without apical crest. Prosternum with the front margin nearly straight from side to side. Length, 5.7-7.6 mm., .23-.30 inch.

Habitat: Arizona.

A small series in the Horn collection without more definite locality. The markings are much like those in *neglecta*, but the larger size, more pointed elytra and much more broadly emarginate clypeus will easily distinguish it from either *neglecta* or *tubulus* with which it must be associated. The unguate teeth are acute and nearly as long as the claw in the male, less acute and more basal in the female. In *neglecta* and more notably in *tubulus* the unguate teeth are blunt or even truncate at tip.

A. stigmata *Horn*, Proc. Cal. Acad. Sci., IV, p. 370, Pl. VII, Fig. 2.

Superficially not distinguishable from the next, which see for a statement of differences. Length, 5.8-8 mm., .23-.31 inch.

Habitat: Lower California (San Jose del Cabo), Arizona (Tucson).

A. bivulnera *Horn*, Proc. Cal. Acad. Sci., IV, p. 371.

Distinct by its color from everything else in our fauna except *stigmata*, from which it is separated, aside from prosternal characters, by the denser recumbent white hairs broadly clothing the sides of the metathorax and abdomen, and the abruptly denser punctuation of the abdomen beginning with the second segment. This last character has been noted previously in *pubiventris*, and again appears in *gibbula*. Length, 6.2-7.5 mm., .25-.30 inch.

Habitat: Arizona (Tucson).

A. versuta *Horn*, Trans. Am. Ent. Soc., VII, p. 21, Pl. I, Fig. 33.

The distinguishing characters of this species are the strongly rounded sides of the prothorax which is widest at the middle and a little sinuate before the hind angles; the strongly sinuate sides of the elytra; the vestiture, which is relatively longer and finer than in any other species of this group, and the sinuate prosternal margin, the middle sinus limited by more or less prominent cusps. The disparity in the punctuation of the ventral segments mentioned by Horn is scarcely at all appreciable in any of the five examples before me. Length, 6-6.5 mm., .24-.26 inch.

Habitat: California. The type from Mariposa, other examples from Los Angeles county.

An odd little species and apparently rare.

A. guttifera Lec., Proc. Acad. Sc. Phil., 1859, p. 72.

In the strongly sinuate sides of the elytra and shape of the prothorax this species closely resembles *versuta*; it is however distinctly larger and at once separable from this and every other species by the extraordinary ventral character mentioned in the table.

In the Leconte collection are three examples: the type from Fort Tejon, California, the other two from Arizona. The type has the prosternum noticeably retracted and with distinct prominences, the elytral striæ not impressed on the disk, the intervals uniseriately punctate, the vestiture of the upper surface consisting of moderately long fine erect hairs. In the Arizona examples both upper and under surface are clothed with broad plumose recumbent scales, the form is stouter, the striæ impressed throughout, intervals more or less convex, the sutural quite irregularly densely punctate, the second somewhat so and others having a tendency toward irregularity though apparently offering only a single series of punctures: the posternum less markedly sinuate in front, in one example nearly reaching the front angles, and in the other falling a little short; prothorax more densely punctate. These differences would seem amply sufficient for specific distinction, but the matter is complicated by the presence of a specimen collected at Big Springs, Texas, by Mr. Wickham, in which the vestiture is as nearly as possible intermediate between the two forms mentioned above, consisting of semirecumbent squamiform setæ which become hair-like on the prothorax and broader, more recumbent and plumose at the sides of the elytra; the form narrower than in the Arizona specimens, the prosternum more strongly sinuate than either and the elytral intervals with single series of punctures which are however somewhat irregular. It is not likely that the above forms represent three distinct species, at all events it would not be wise to attempt their definition without a much larger material than exists at present in collections. Length. 6.8-7 mm., .27-.28 inch.

Habitat: California (Fort Tejon—Leconte, Los Angeles County—Van Dyke), Arizona, Texas (Big Springs—Wickham).

A. cribricollis Horn, Proc. Cal. Acad. Sci., IV, p. 375, Pl. VII, Fig. 4.

The cribrate punctate thorax distinguishes this species from all ex-

cept *gemina*, and *cubacola*; the former is much smaller and has different antennæ, and the latter is different in every respect. Following Horn's description I have placed *crabricollis* among those species having the last ventral unmodified, but a specimen in my collection which almost surely belongs here, has a well-defined thick sub-apical crest. Length, 8-10 mm., .32-.40 inch.

Habitat: Texas.

A. quadrivittata Horn, Trans. Am. Ent. Soc., VII, p. 23, Pl. I, Fig. 37.

Cannot be mistaken for anything else. The yellow vittæ are often so broad as to leave only the suture and a narrow stripe beginning at the humeral umbone dark. The thorax is always distinctly shining with the punctures on the disk well separated. Length, 4.5-5.5 mm., .18-.22 inch.

Habitat: Occurs from El Paso, Texas, to the Mojave Desert in California.

A. insignis Horn, Proc. Cal. Acad. Sci., IV, p. 377.

Our tiniest species. The type is the only specimen known. Length, 4 mm., .16 inch.

Habitat: Lower California (San Raymundo); on cactus.

A. gemina Horn, Trans. Am. Ent. Soc., VII, p. 23, Pl. I, Fig. 37; *nebulosa* Horn, Proc. Cal. Acad. Sci., IV, p. 376.

I have been quite unable to discover characters which will permit the retaining of *nebulosa* as distinct from *gemina*. The only differences mentioned by Horn are those of size and markings, both of which are of no value whatever, as is amply shown by the dozen or more examples which I have examined. Typical *gemina*—that form with sharply defined elytral vittæ—is exceptional; from this there is a gradual transition to the more common *nebulosa* form with elytra intricately maculate. There is a noticeable variation in the density and rugosity of the abdominal punctuation, but in all specimens, with a single exception, the surface of the basal segments is smooth and shining between the punctures, at least at the middle, becoming more rugulose and subopaque toward the apex. In the exception noted—a specimen taken by me on Mt. Tamalpais near San Francisco—the entire abdomen is alutaceo-rugulose and opaque. I prefer to consider this an extreme variation until further specimens appear. Length, 5-6.1 mm., .20-.25 inch.

Habitat: Occurs in California from Siskiyou to Los Angeles and San Bernardino Cos.

ACMEODERÆ LOBATÆ.

Two species are here added to *gibbula* which alone formerly constituted this group. They agree in having the prosternum more or less prominently lobed at middle, the sides reaching the front angles. They are not otherwise closely related, *cubæcola* indeed being decidedly aberrant.

They easily separate as follows:

- Prosternal lobe less prominent, rounded, not emarginate; last ventral without apical crest.....**cubæcola.**
- Prosternal lobe more prominent, angulate at sides with the summit emarginate; last ventral with apical crest.
- Elytra not carinate, not produced at apex, yellow spots much larger and less numerous.....**gibbula.**
- Elytra caudate, third and fifth elytral intervals subcarinate in basal half, yellow spots much smaller and more numerous.....**griffithi.**

A. cubæcola *Duv.*, *Ins. Cuba*, 1857, p. 57.

Depressed, opaque, rusty black, elytra variegated with yellow. Thorax wider than the elytra, very coarsely cribrate punctate, hind angles broadly yellow above, more narrowly beneath. Elytra with closely placed striæ of coarse rounded punctures, intervals narrow, not well defined. Beneath coarsely punctate, the abdomen less coarsely so toward the tip, the last ventral without crest. Prosternum with short, broad median lobe, truncate with rounded angles. Length, 6-7 mm., .25-28 inch.

Habitat: One example from the National Museum labelled Key Largo, Fla.; another kindly given me by Mr. Henry Wenzel is labeled simply "Fla.," but is doubtless also from one of the Keys.

This species even more than *cuprina* possesses a facies that stamps it at once as an interloper. In only one other species—*robusta*—is the margin of the thorax in part yellow beneath as well as above, and in no other are the punctures at the middle of the first abdominal segment coarser than at the sides and apex.

A. gibbula *Lec.*, *Proc. Acad. Sc. Phil.*, 1858, p. 69; *delumbis* Horn, *Proc. Cal. Acad. Sci.*, IV, p. 378.

This species is generally well known and needs little comment. The punctuation of the thorax and abdomen varies somewhat in density, and the thorax is either unspotted or with two marginal spots. The ventral plate is truly apical, giving the appearance of a double margin; it is thin and nearly hyperbolic in outline. I have carefully compared the types of *delumbis* with a long series of *gibbula* and

have no hesitation in announcing the above synonymy. Length, 10-12 mm., .40-.48 inch.

Habitat: Desert regions of Southern California, Arizona, New Mexico (near Rincon, Cockerell), Peninsula of California (Cape region).

A. griffithi, sp. nov.

Broad, depressed, piceous, thorax slightly purplish bronzed, elytra with faint tinge of blue, maculate over their entire surface, with small yellow spots, and each with a series of about seven similar red spots extending from the umbone to the tip; the two or three apical spots tending to coalesce. Upper surface sparsely clothed with short erect blackish hairs, beneath with more abundant whitish hairs which are longer and denser at the sides, especially of the metasternum. Head closely deeply punctate, longitudinally broadly impressed. Thorax unicolor, twice as wide as long, sides regularly arcuately narrowed from base to apex; impressions broad and deep, surface closely punctate, side margin narrow, not visible behind from above. Elytra as wide at base as thorax, sinuately very feebly narrowed to beyond the middle, then strongly narrowed to the tips which are conjointly produced much after the manner of certain *Dicercas*; striæ impressed, with coarse deep rounded punctures, second, third and fifth intervals more convex, especially toward the base; fourth, sixth and seventh nearly obliterated by the approximation of the striæ; intervals with single series of distant fine punctures. Beneath densely but not very coarsely punctate throughout; prosternum produced in front in a subrectangular lobe which is feebly emarginate in front; last ventral with distinct subapical carina. Length, 13 mm., .52 inch.

Habitat: Arizona (Tempe Desert).

This fine species is dedicated with much pleasure to Dr. H. G. Griffith, of Philadelphia, to whose liberality I am indebted for this and other interesting additions to my cabinet.

ACMÆODERÆ GRACILIFORMES.

Two species, *alacris* and *comata*, were separated from all others by Dr. Horn on account of their unusually long slender tarsi. In *comata* the hind tarsi are subequal in length to the tibiæ and in *alacris* are much longer than half the tibiæ. These two species are furthermore peculiar by their very narrow form which is strongly arched above from head to tip and by the third, fifth and seventh elytral intervals being subcostiform. The following are the characters given by Dr. Horn for their separation.

Prosternum emarginate at middle and on each side angulate, aæ attaining the anterior angles. Thorax above unicolor. Abdomen more densely punctured at the sides with longer hair.....	comata.
Prosternum squarely truncate beneath, aæ attaining the angles. Thorax above yellow at the sides. Abdomen very sparsely punctured.....	alacris.

A. comata Lec., Proc. Acad. Sc. Phil., 1858, p. 70. Length, 9.5 mm., .38 inch.

Habitat: "One specimen from near Fort Yuma, California."

A. alacris Horn, Trans. Am. Ent. Soc., VII, p. 25, Pl. I, Fig. 40. Length, 9 mm., .36 inch.

Habitat: "One specimen given to Dr. Leconte by Dr. Sharp, of Scotland, collected by Mr. Hardy in the same region with the preceding."

I am not aware of the existence of any specimens of these species other than the types, and it is a little peculiar, if the above localities are correct, that one or the other should not have turned up again in all the collecting which has since been done in the same region.

NOTES ON SCOTOGRAMMA AND ONCOCNEMIS WITH DESCRIPTIONS OF NEW SPECIES.

BY JOHN B. SMITH, SC.D.

Oncocnemis barnesii, sp. nov.

Head and collar rich sienna brown. Thorax powdered with whitish and gray, darker posteriorly. Primaries ashen gray at the base, brown beyond the t. p. line. T. a. line black, single, broad, with an even and slight outcurve. T. p. line black, single, broad, the edges not sharply defined, almost upright. In the dusky portion of the wing beyond this line the veins are marked with black scales and there are black streaks in the interspace. There is a black terminal line, followed by a pale line at the base of the fringes. Ordinary spots entirely wanting. Secondaries whitish at base, shading to almost blackish at the fringes which themselves are white. Beneath whitish, a little powdery. Expanse, 1.50 inches = 37 mm.

Habitat: Yellowstone Park, Wyo., in August; Dr. Barnes.

A single female example of this very strongly marked species is at hand. There is nothing like it in the genus, and the two simple transverse black lines on the gray ground will suffice to identify it. It has something the appearance of *atrifasciata* without the dark median filling.

Oncocnemis melantho, sp. nov.

Ground color is a mottling of white, gray, black and ocher yellow. Head ocher yellow with some black scales intermingled. Collar yellow with a blackish central band. Thorax mottled, blackish and white, with the tip of the basal tuft yellowish.